AUTO- ★ S02 D7333 D/17 ★GB 1588-512

Weighing machine for bulky objects - suspends object from lockable lever arm via e.g. spring balance to allow reading to be taken

AUTOWEIGH WEIGHING 22.10.76-GB-044125 (10.07.76-GB-028781)

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The weighing appts. is for e.g. beer barrels, livestock or bags of coins. It includes a support having a base which is shaped to surround an article to be weighed on at least two sides. A lever is mounted for pivotal movement above the article, which may be attached to the lever permitting it to be lifted with a mechanical advantage in favour of the person operating the lever.

A spring balance, or other weighing device from which the article can be suspended, may be attached to the lever in order to indicate the weight of the article. The lever may be pivoted about a point lying between its ends, with the article suspended from one end and the distance between this end and the pivot point being less than the distance between the pivot point and the other end of the lever. The lever may be locked in position after the article has been raised to permit a weight reading to be taken.

S2-D2C

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(72) Inventors MICHAEL BARRIE JAGGER
and JOHN RICHARD GREENWOOD

(54) WEIGHING

(71) We, AUTOWEIGH (WEIGHING MACHINES) LIMITED of Siddal Hall Works, Siddal, Halifax in the county of York, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

The invention relates to weighing, and particularly but not exclusively to the weighing of barrels, kegs and other containers e.g. containing beer.

It is frequently desirable to weigh barrels such as beer barrels, for example for stock-taking purposes, but considerable problems exist in providing suitable apparatus, since such weighing frequently has to be carried out by one man in a confined space such as a cellar, and the weight of a full barrel of beer is such that it is extremely difficult for one man to lift it on to a weighing platform.

The invention provides apparatus for weighing beer barrels, livestock, bags of coins or like heavy and bulky articles, the apparatus comprising a support device having a base portion shaped to surround an article to be weighed on at least two sides, a lever mounted for pivotal movement above the article, and means for attaching the article to the lever so that the lever can be used to lift the article with a mechanical advantage in favour of the person operating the lever, the lever having attached thereto means for indicating the weight of an article lifted by the lever.

The lever may be pivoted about a point lying between its ends, the means for attaching the article being at one of the ends of the lever and the distance from the said one end to the pivot point being less than the distance from the pivot point to the other end of the lever.

The lever may be provided with a spring balance or other weighing device from which the article can be suspended.

The weighing apparatus may be provided with locking means operable to lock the lever in position after the lever has been pivoted to raise an article. The locking means may comprise a locking hook or pin operable to lock the lever to the support device.

The support device may comprise a support frame. The frame may comprise portions which can be positioned one at each side of an article to be weighed, and means interconnecting the upper portions, the lever being pivoted on the interconnecting means.

The support frame may be collapsible for ease of storage or transportation.

The mechanical advantage in favour of the person operating the lever is preferably greater than ten and may be greater than twenty. The support device may be mounted on wheels and a brake may be provided acting on at least one of the wheels.

The apparatus may have a flexible elongate member for use in attaching an article to the lever, the flexible elongate member being adjustable in length.

Preferably the flexible elongate member is a chain, the chain being adjustable in length by means of a hook operable to engage the chain to take up slack in the chain.

The apparatus may have means to hold the lever in a loading position while the article to be weighed is attached to the lever.

By way of example, specific embodiments of weighing apparatus according to the invention will now be described, with reference to the accompanying drawings, in which:—

Figure 1 is a side view of an embodiment of weighing apparatus according to the invention, showing a beer barrel in the lifted position;

Figure 2 is a view in the direction of arrow A of Figure 1, with the barrel and spring balance omitted;

Fibure 3 is a section on the line A—A of Figure 2;

Figure 4 is a side view of another embodiment of weighing apparatus, showing a beer barrel in the lifted position;

Figure 5 is a side elevation of the lower part of the support device of the apparatus shown in Figure 4;

the three portions of the central support pillar.

When a barrel is not attached to the device, the weight of the lever 42 maintains the spring balance 46 in its highest position, and particularly when fitting the spring balance to smaller barrels, it may be necessary to hold the lever 42 in a raised position with one hand, while trying to attach the hooked rods 48*a* to the barrel with the other. It is more convenient to be able to use two hands to attach the barrel, particularly when using the attachment chain described later with reference to Figure 10, and so a holding device is provided comprising a small wire stirrup 49*a*. The stirrup comprises a small C-shaped piece of wire, the free ends of the C each engaging in a hole in one side of the part 39. The stirrup can thus be pivoted from a position in which it lies flush with the part 39, to a raised position. When it is desired to attach a keg, the lever 42 is raised and the stirrup 49*a* is then flicked up into a raised position in which it seats in the recess formed between the parts 42 and 44. In this position the stirrup supports the lever in the raised position while the keg is attached. The stirrup can then be flicked down again when it is desired to use the lever to raise the barrel.

The invention is not restricted to the details of the foregoing embodiments. For instance the support frames may be mounted on wheels to facilitate movement from one barrel to another. For instance the part shown in Figure 6 may have three castor-type wheels, one fitted at the free end of each of the legs 33 and 34, the wheel fitted to leg 33 having a foot operated brake.

Instead of using two chains or two hooked rods to secure a barrel to the device, a chain of the form shown in Figure 10 may be used. The two ends of the chain 50 are attached to a ring 51 and two hooks 52 are slidable on the chain. A further hook 53 is attached to the ring 51. The hook 53 has a slot 54 therein. In use the ring 51 is attached to the spring balance and the two hooks 52 are hooked on to the rim of a barrel, at opposite sides of the barrel. Any slack in the chain is then taken up by pulling up one side 55 of the chain and fitting it into the slot 54. The slot 54 is shaped to receive and hold a link of the chain, the slot being too narrow for the link to slip through the bottom of the slot. Any slack in the chain thus hangs in a loop between the hook 53 and the ring 51, the taut portion of the chain being supported at one end by the ring 51 and at the other and by the hook 53.

A chart may be provided with the device, listing the empty weights of various known makes of barrels, so that the weight of beer may be obtained by subtracting the weight of the empty barrel from the weight recorded on the spring balance. A chart may be provided which gives figures for converting weights into fluid measures, for example converting kilograms to pints. Alternatively the dial of the spring balance may carry a scale which is marked in fluid measures.

The spring balance may have a second, manually adjustable, pointer attached to the face thereof, so that when the main pointer has indicated a total weight, the adjustable pointer can be made to coincide with the main pointer and can then be moved back by an appropriate amount dependent on the empty weight of the barrel being used, so that the adjustable pointer will then indicate the correct amount of fluid in the barrel.

Alternatively the spring balance may have a second, manually rotatable, scale thereon identical to the main scale. An empty barrel can be weighed, and the second scale can be rotated to bring the zero marking on the second scale into registration with the weight of the empty barrel indicated on the main fixed scale. Weighing of filled barrels can then be carried out, the main scale giving a reading related to the total weight and the second scale giving a reading related to the weight of fluid only. If the weight of empty barrel is known, the zero on the second scale can be moved into registration with the correct weight on the fixed scale, without the need to weigh an empty barrel first.

Although the apparatus has been specially designed for weighing beer barrels, it may also be utilised for weighing any other heavy items which cannot conveniently be lifted onto a conventional weighing device. It may be used to weigh other containers and, for example, banks may find it useful for weighing heavy bags of money. It may be utilised for the weighing of livestock.

WHAT WE CLAIM IS:—

1. Apparatus for weighing beer barrels, livestock, bags of coins or like heavy and bulky articles, the apparatus comprising a support device having a base portion shaped to surround an article to be weighed on at least two sides, a lever mounted for pivotal movement above the article, and means for attaching the article to the lever so that the lever can be used to lift the article with a mechanical advantage in favour of the person operating the lever, the lever having attached thereto means for indicating the weight of an article lifted by the lever.

2. Weighing apparatus as claimed in Claim 1, in which the lever is pivoted about a point lying between its ends, the means for attaching the article being at one of the ends of the lever and the distance from the said one end to the pivot point being less than the

1588512 COMPLETE SPECIFICATION

6 SHEETS *This drawing is a reproduction of the Original on a reduced scale*

Sheet 6

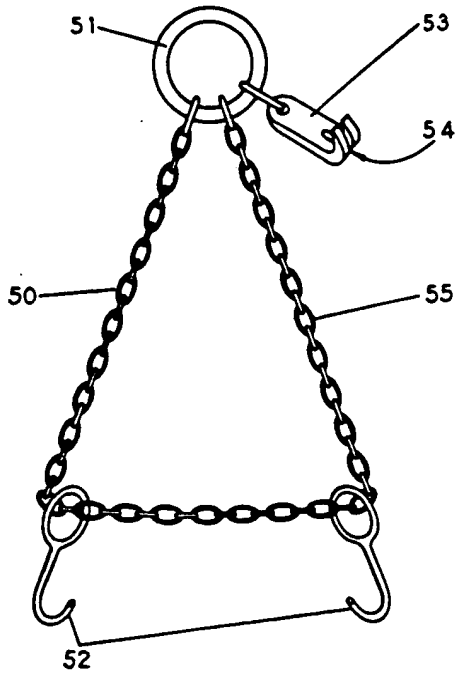

FIG 10

FIG 7 (B)

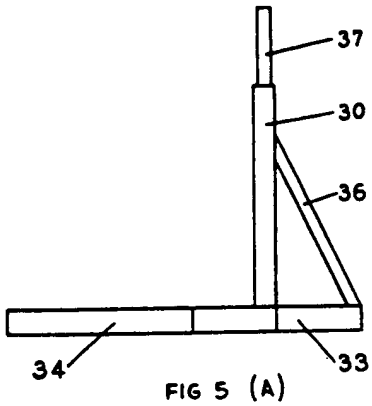

FIG 5 (A)

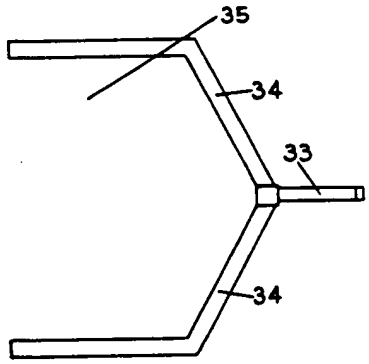

FIG 6 (A)

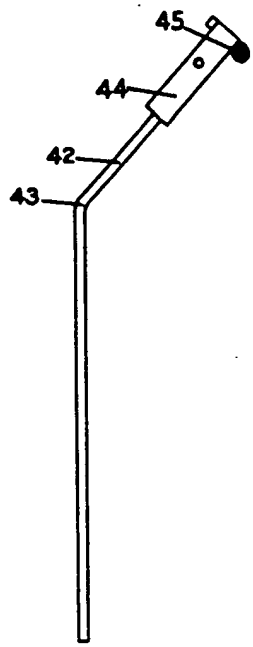

FIG 9 (D)

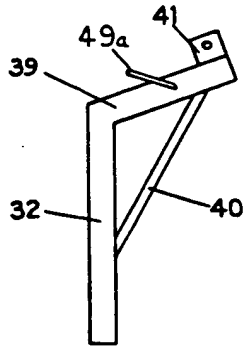

FIG 8 (C)

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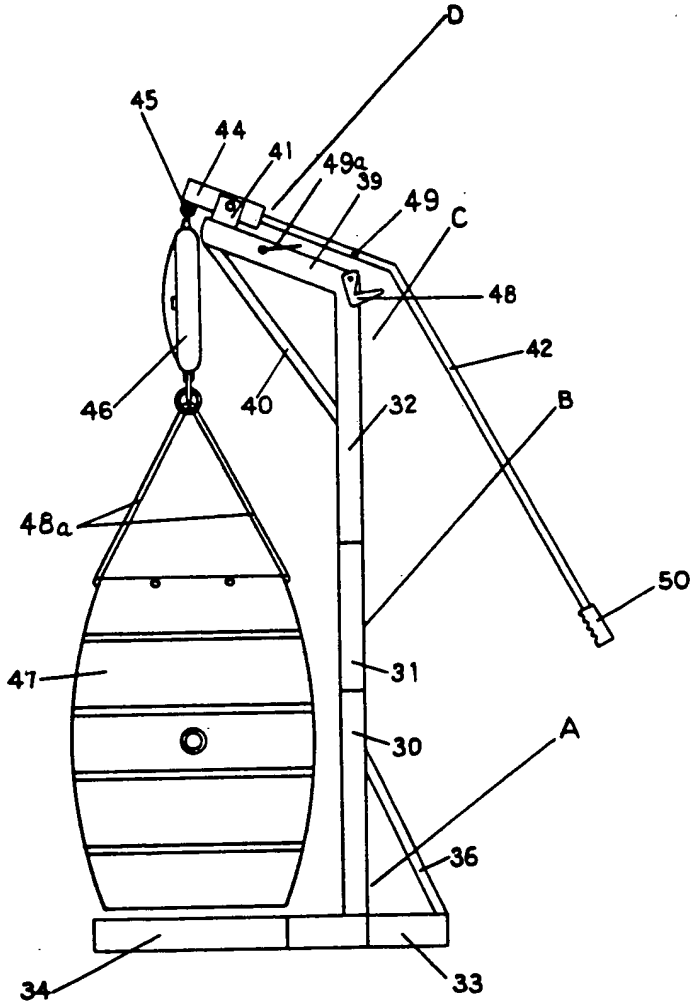

FIG.4

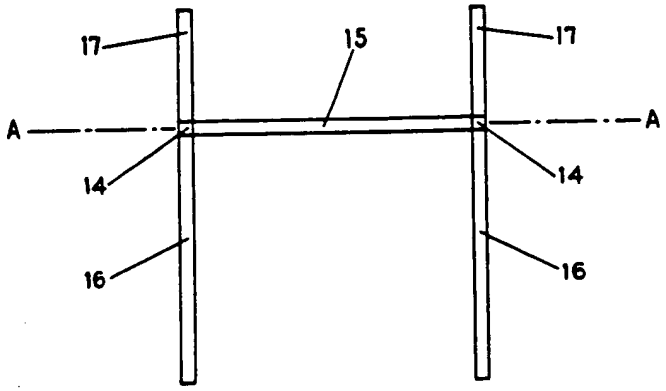

FIG 3

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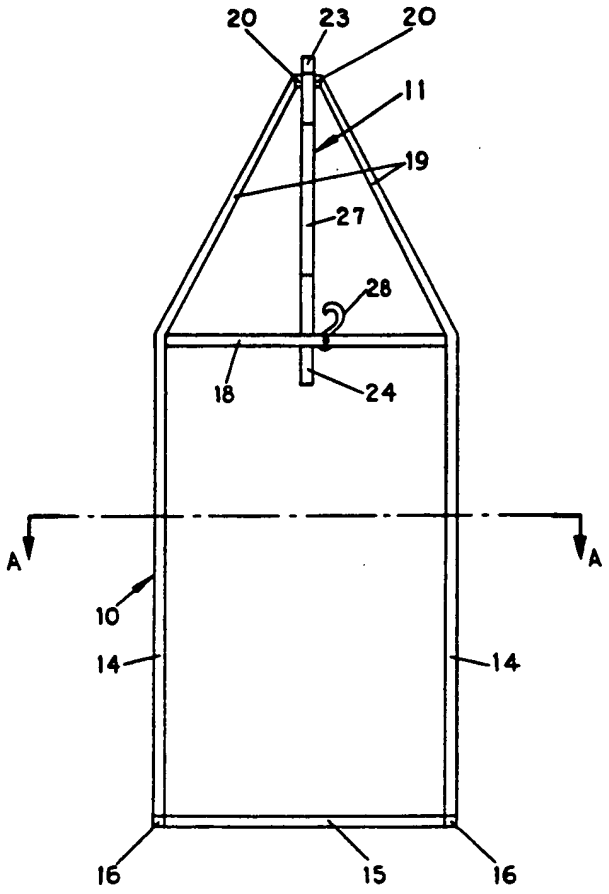

FIG 2

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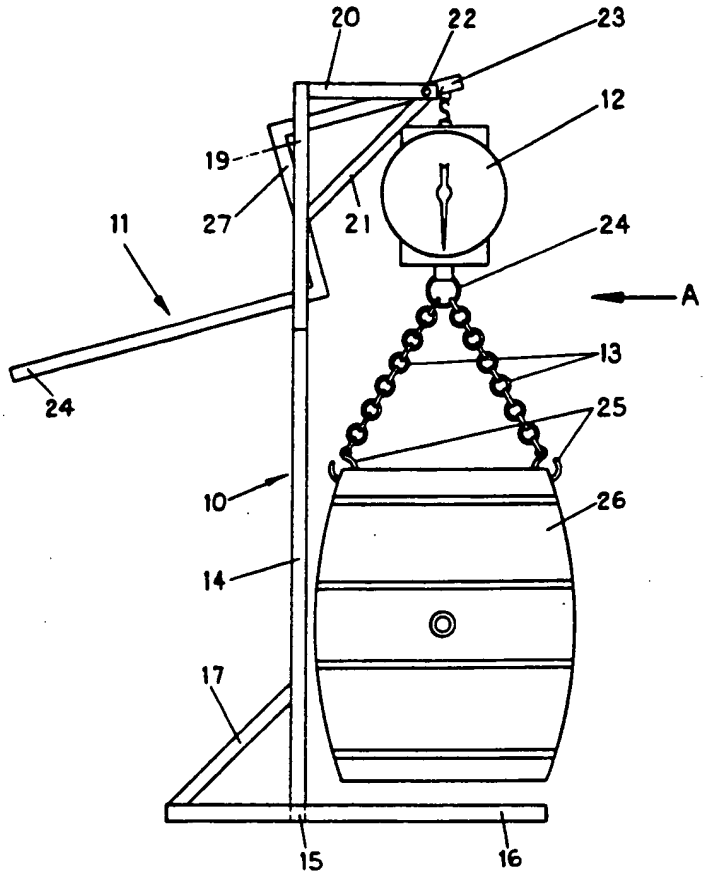

FIG 1

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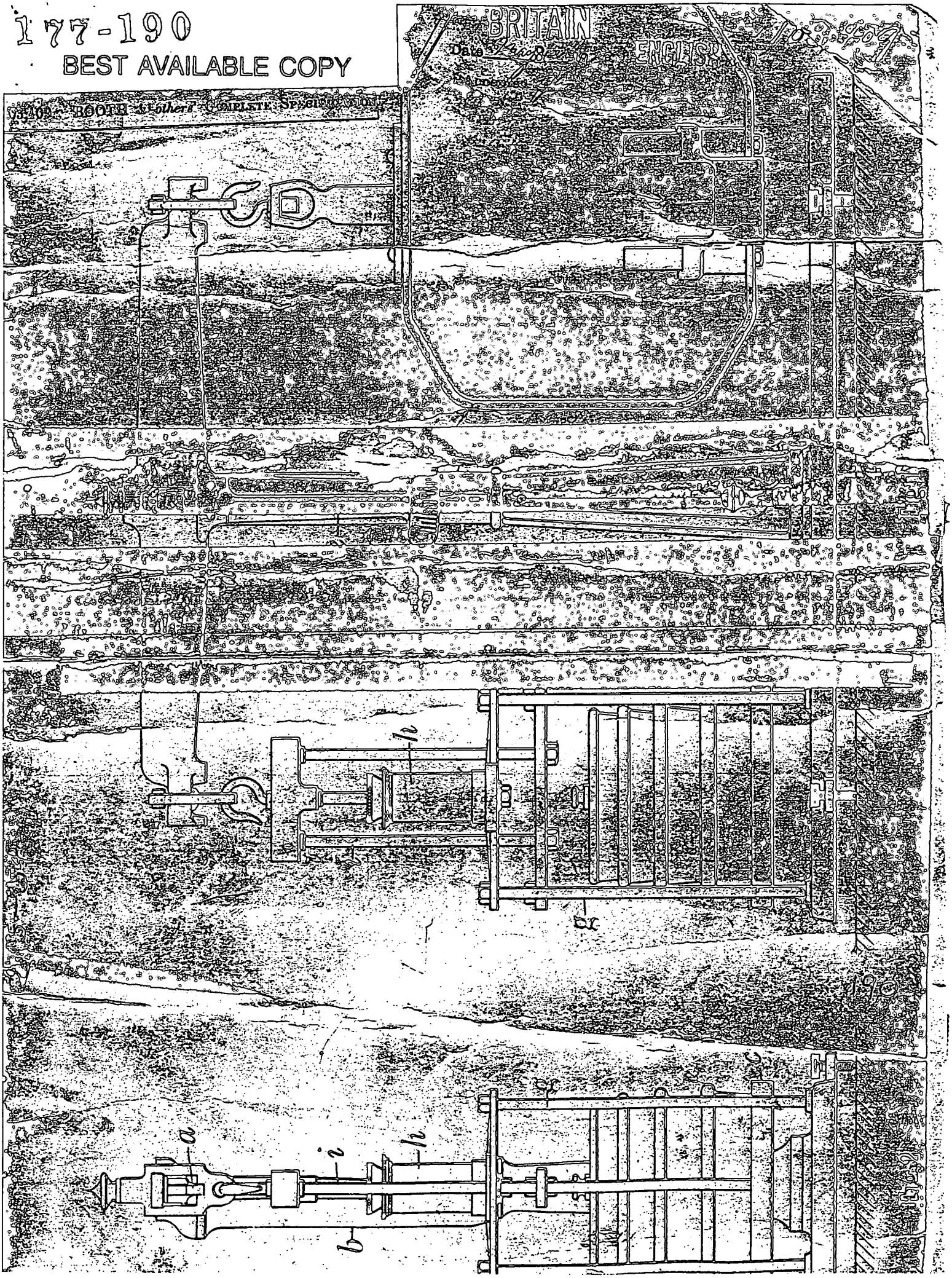

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